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Case Report

Management of *Mammae* Tumor Cases in Mixed Chow Dog Breeds at Makassar Zoo Clinic

Hartarto Akhmad , Dwi Kesuma Sari, Sri Deniati

Study Program of Veterinary Medicine, Faculty of Medicine, Hasanuddin University, Jl. Perintis Kemerdekaan Km. 10, Makassar, South Sulawesi 90245

*Corresponding author : Hartarto Akhmad (hartartoakhmad@gmail.com)

Abstract

Tumors are a common problem in many types of dogs, including chow-chows and their breeds. This disease is a degenerative diseases resulting from mammary gland cells dividing and growing without control. The clinical signs that are seen are usually the presence of a slow mass growth, single or multiple. Treatment of mammary tumor patients in mixed chow dogs at the Makassar Zoo Clinic used ovariohysterectomy and simple mastectomy methods. Premedication of 0.025% Athropine sulphate with dos e 0.04 mg/kg BW subcutaneous route, 10% anesthetic Ketamine HCl dose of 15 mg / kg BW and Xylasine 2% dose 2 mg / kg BW intramuscular route. In addition, it is continued with supportive therapy in the form of giving Be tamox LA, Meloxicam, and more attention to post operative management such as feeding and post operative wound management.

Key words: *Mammary Tumor, Mixed Chow Dog, Ovariohysterectomi, Mastectomi*

Introduction

Tumors are a common problem in small animals including dogs. The tumor is identical to a neoplasm which is a collection of abnormal cells, formed by cells that grow uncontrollably and are detrimental to the sufferer. Tumors can develop into cancer. Epidemiological studies regarding the incidence of cancer in small animals have been carried out. The results of a study or post mortem study on 2,000 dogs in America showed that 23% of the causes of canine death were cancer which was originally from a tumor but was not treated properly , so indirectly the incidence of tumors in dogs should be detected (Morris and Dobson, 2010). Tumors are the growth of abnormal and uncontrolled tissue transformed in the body of the host (Gunanti et al, 2009). Tumors *of mammary* um umnya rare in dogs and cats , but if it happens to berakib at fatal for tumor *breast* is *malignant* and tissue damage are aggressive (Sorenmo 2011).

Tumors can be divided into two, namely malignant tumors and non-malignant tumors. Incidence of malignant tumors in individuals greatly threaten its survival, for example in the case of *hemangiosarcoma* spleen dogs. Meanwhile, non-malignant tumors can cause death if the tumor blocks or interferes with important body functions, but basically these

tumors do not directly cause death, for example, papilloma tumors in dogs. For the naming of tumors, based on the name of the organ / tissue, the type of tissue (epithelial or non-epithelial), and the malignancy of the tumor (benign or malignant). For example: Benign tumors (*Osteoma, myoma, fibroma, melanoma, papilloma, adenoma).* Malignant tumors *(Osteosarcoma, Miosarcoma, Fibrosarcoma , Melanosarcoma, Carsinoma, Adenoc arsinoma)* (Gunanti et al, 2009). Gland tumor *mammary* dogs have receptors for female hormones (estrogen and progesterone). These hormones stimulate the growth of tumors. Risk factor involved for the development of cancer in female dogs, but a way to check that is often used is the level and duration of exposure to endogenous estrogen and eksogen, for example: *estrus* disorders , nulliparity, or late *menopause* in animals , will increase lifetime exposure to estrogen. In addition, obesity in dogs and cats will increase postmenopausal estrogen levels . Estrogen produced by adipose tissue post- *menopausal* obesity will convert androgens to estrogens. In addition, cases of *mammary* gland tumors were not found in dogs and cats who had their ovaries removed *(ovarium)* and their contents at a very young age because these reproductive organs play an important role in the formation and secretion of reproductive hormones. Conversely, giving progesterone to prevent pregnancy or to any other treatment, increased the risk of tumor (Sorenmo 2011).

Gland tumor *mammary* in dogs are classified as epithelial tumor cells, mesenchyme and mixtures (Morris, 2010). Histopathologically, the nucleus appears to be enlarged because the cytoplasm is reduced, the nucleus is hyperchromatic due to the increase in nucleoproteins, the nucleus is larger than normal. There is also miythosis with various levels (*prophase, metaphase, anaphase, telophase) and* even abnormal mythosis, namely multicentric mythosis, for example tripolar or other forms (Tjarta, 2009). The degree of malignancy of the tumor *(grading)* is related to its ability to metastasize . Each tumor has different metastatic abilities. The basis used to determine the level of malignancy by looking at the degree of differentiation, nuclear abnormalities and the number of mitoses.

Materials and Methods

Tools needed among other things, *handles scalpel* and *blade* , scissors straight, scissors bent, *needle holders,* forceps anatomic, tweezers *cirrurgis,* a set of *hemostatic forceps* , *allis forceps*, thump clamps, termometer, stethoscope, stopwatch, syringe, mosquito clamps , scissors sharp blunt, sharp scissors sharp, rope restraint, towels , *surgery lamp,* and a container for tools surgical . Other materials used are soapy water, 70% alcohol, *betadine, Athropine sulphate, Xylasine, nebacetine, hematodine, biodine,* ointments *biophlacentone* , Betamox LA , sterile gauze, yarn *catgut chromic* 4/0 and 3/0, 70% alcohol, NaCL fluids, tampons, *needles* , *handscoens,* and surgical masks .

Ovariohysterectomy

The dog will need to be fasting (no food or water) the night before surgery and the day of surgery. Prior to anesthesia, blood will be tested to ensure her organs are functioning properly and undiagnosed diseases are absent from the blood work. A pre-anesthetic, pain medication, and antibiotic are administered by injection to the dog. The dog will be feeling drowsy from the pre-anesthetic/sedative, but mask gas anesthesia will likely follow to allow the dog to rest comfortably. The anesthetized patient is placed on the surgical table in dorsal recumbency (on the back). The hind legs are tied cranially for stabilization purposes. The patient will have the hair clipped close to the skin in a section from the xyphoid to the pubis, an inch past the nipples. The freshly clipped area will then be scrubbed for surgery. A drape is placed on top of the dog,

creating a sterile field. The drape is clamped in place and an opening is made in the drape, just above the focus point of the surgery. An incision is made using a scalpel blade, typically created over the midline just caudal to the umbilicus. The incision will pass through the subcutaneous tissues, fat and eventually, the peritoneal cavity. The uterus is located using a hook, similar to a crochet hook. The uterine horn will be gently pulled through the incision opening and a Kelly forceps will be used to grasp the reproductive organ. The uterus is dissected and tied off with 0 or 2-0 monofilament absorbent sutures, which require removal. Several sutures will be placed to ensure closure. The excess tissues from the pedicle are removed and inspected for bleeding. If no bleeding is present the uterine pedicle is placed back into the peritoneal cavity. The surgical opening, including all layers of the abdominal wall, will be sutured with monofilament absorbent sutures. Surgical glue may be placed on top of the stitches as a preventative method.

Mastectomy

This case use regional mastectomy type. The steps are removal of two or more mammary glands with their associated lymph nodes. Originally based on a concept of vascular and lymphatic drainage that is potentially too simplistic given the known variation in lymphatic anatomy. Glands 1, 2, 3 +/-4 drain to axillary and cranial sternal nodes. Glands 3, 4, 5 +/-2 drain to the superficial inguinal nodes.Unpredictable crossover of lymphatic branches between glands and also between right and left sides complicate this picture.

The removed tumor tissue must be evaluated for histology . The patient is placed in a dry and clean cage . Care of animals after surgery needs attention. Postoperative disorders such as bleeding in the incision wound can be prevented by making pressure dressings. In addition, things that need to be considered are cleanliness and the condition of the incision scars that do not open again, the wound must be kept dry and sufficiently aerated, the environmental conditions are as comfortable as possible for the patient, the administration of ointments to accelerate tissue regeneration and broad-spectrum antibiotics to prevent secondary infection. Use of *Elizabeth co l lar* can greatly help prevent scar licking patient.

Results and Discussions

Based on information from a client , our client raises about 20 dogs, including the Chow-chow breed. Clients have a crossbreed dog *mixed chow* result of crosses with breeds *of terriers.* This patient has a morphological abnormality with inspection of enlarged *mammary* glands with abnormal morphology and asymmetry of other parts of the *mammary* gland . The surface of the skin around the tissue looks shiny. The dog was suspected as a *suspect* tumor. Prior to the mastectomy, the veterinarian team performs a physical examination and blood tests on the patient. The patient shows normal signalement except glandula mammary. In this case, our patient has enlargement and swelling glandula mammary. This incident has been going on since the last 3 months. The weight 24.3 kgs, body temperature : 38.2 ^{0}C, heart frequency : 135x / minutes and Respiratory rate : 30 x / minutes.

Diagnosis

Diagnosis tumor *mammary* can be confused with several abnormalities of the gland *mammary* other. Signs were similarly found to limphoma, tumor *mast cells*, *mammary hyperplasia* and mastitis. Therefore , it is necessary to perform a biopsy and histopathological examination of the tissue for tumor identification .

Figure 1. *Tumor Mammae Morphology in Mixed Chow*

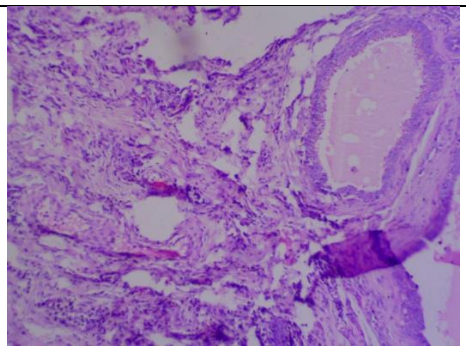
X-ray images are also required to identify tumor metastases in the lungs, liver and kidneys. Tumor metastasis to other organs can occur because of the lymphatic connection between the right and left *mammary* gland series . However, in this case, confirmation of the diagnosis was carried out using only blood tests and histopathology.

Generally, the glands in the cranial area (*mammary glands* 1, 2 and 3) have a channel to the *axillary lympho nodes*, while the glands in the caudal area *(mammary glands* 4 and 5) lead to the *inguinal lymph onodus*, and between these glands there are different channels leading to one or more of them. both lymph nodes. This *flexiform* relationship can help explain how tumor lymphatic metastasis occurs through lymph vessels to other organs. Gland tumor *mammary* unable to metastasize to the glands, *mammary* a tau adjacent lymph nodes via lymphatics, because there was no lymphatic interkelenjar relationship between them.

Table 1. *Blood Test Results of Tumor Patients in Mixed Chow Dogs*

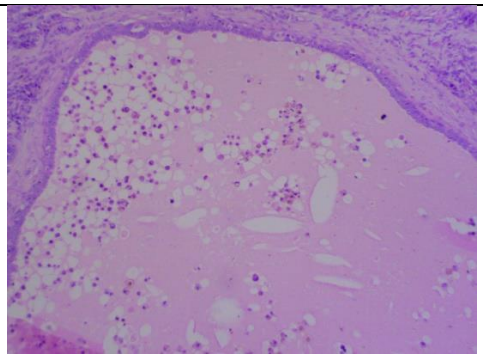
Parameter	Final Results	Unit	Interpretation	
HEMATOLOGI				
WBC	34	10^3/uL	5-14.1	H
LYM #	5.3	10^3/uL	0.4-2.9	H
MID #	1.3	10^3/uL	0-1.8	
GRA #	27.4	10^3/uL	4-12.6	H
Lym %	17.1	%	8-21	
Mid %	4.1	%	2-9	
Gra %	78.8	%	60-83	
RBC	3.63	10^6/uL	5.5-8.5	L
HGB	5.2	g/dL	11.9-18.9	L
MCHC	21.7	g/dL	32-36.2	L
MCH	14	Pg	21-26.2	L
MCV	64.7	FL	66-77	L
RDW-CV	15.6	%	11-15.5	H
RDW-SD	41.4	fL	35-58	
HCT	23.5	%	37-55	L
PLT	184	10^3/uL	211-621	L
HMPV	8.8	fL	6.1-10.1	
PDW	10.9	fL	10-18	
PCT	0.162	%	0.1-0.5	
P-LCR	35.2	%	13-43	

A



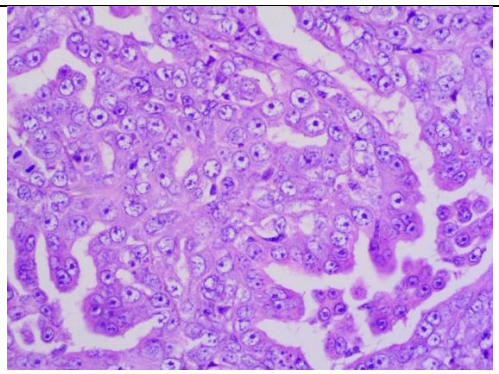
Fibrin in all follicles (25x enlargement, HE stain)

B



There is fibrin in the lumen containing necrotic cells (50x enlargement, HE staining)

C



Many cells undergo necrosis and lead to tumors; There was a large accumulation of inflammatory cells (200x enlargement, HE staining)

Figure 2 . *Diagnosis : Fibriosarcoma Mammae ;*

Figure 3 . *Ovariohysterectomy in Mammae Tumor Patient*

Figure 4 . *Simple Mastectomy in Mammae Tumor Patient*

The location of the enlarged *mammary* gland in the patient is around the second nipple in the right pectoral region. The cause of *breast* tumor formation in patients is not known with certainty . Tumors usually occur in female dogs that are still reproducing and aged between 5-10 years, but ± 80% of cases are diagnosed in dogs aged more than 7 years, while patients with *breast* tumor cases were 7 years old . The risk factor for tumor incidence is high in dogs that are still actively reproducing. According to some researchers it is thought to be related to the production and activity of the hormones estrogen and progesterone. This hormone plays a role in the initial initiation of tumor formation and plays a role in subsequent tumor development . The clinical signs that are seen usually are the presence of a slow mass growth, single or multiple. Approximately 50% of the incidence is multiple tumors. Based on information from the client, the patient has been pregnant 3 times and there is always a result that there are always children who die every birth. This is classified as a case of abortion which is caused due to various factors, both infection and non-infection, including the role of the reproductive hormone system. *Breast* tumors are usually indicated when a mass is detected during physical examination. The length of time over which the mass has been present is usually unknown, but the rate of growth may be useful in determining prognosis. Palpation of regional lymph nodes can help determine distribution. On palpation, lymph nodes are enlarged in the axillary area.

The choice of ovariohysterectomy (OH) measures to prevent tumors is one of the wise choices for patient survival. The hormone estrogen is produced in *ovarium* is known as a trigger tumor *mammary* estrogen receptors on cells *of mammary* talent tumor could make cells divide more rapidly. The faster the division, the greater the chances of cells growing abnormally and becoming cancer seeds. So that the constant stimulation of estrogen

makes tumor cells grow and develop. The hormone progesterone is also produced by *ovarium* so as to accelerate the process of cell growth. Therefore, the appointment *ovarium* so that the cycle of *estrus* stalled so estrogen and progesterone is no longer produced. So that the growth of *mammary* tumor cells also stops. The type of mastectomy performed is a simple mastectomy *(simple mastectomy).* Simple mastectomy is the removal of a single *mammary* gland , including the nipple and the skin over the *mammary* gland .

A simple mastecetomy is the right choice if the tumor tissue is just below the nipple or joining the skin over it. This technique cannot be used if the tumor tissue is below the *rectus fascia.* Team veterinarian mel akukan removal of all of the network to limit *the rectus fascia* to make sure all the glands *mammary* lifted. The thing that must be considered in performing a mastectomy is the distance of the tissue that is removed because it will affect the time of suturing, the greater the distance between the two sides of the tissue that is removed, the higher the difficulty of the operation.

Some postoperative mastectomy cases in animals cause restriction of animal movement, so things like this should be considered by doctors. Another thing that must be considered during the operation process is to be careful in making the incision to minimize the bleeding that occurs. In addition, the cleanliness of surgical instruments and the operating environment must be considered. Postoperative infection cases are very rare because hygiene is not considered. The use of antiseptics and antibiotics must be done frequently during the surgery process.

The following is the procedure for *amoxicillin* works by inhibiting the formation of bacterial cell walls, by inhibiting the incorporation of non-essential N-acetylmuramic acid into the mucopeptide structure that normally makes cells stiff and strong. When the cell wall is not fully formed, a CIS and CES pressure gradient occurs so that a diffusion process occurs and finally the cell undergoes lysis. Amoxicillin has a good antimicrobial effect against microorganisms such as *Haemophilus influenzae*, *Eschericia coli*, and *Proteus mirabilis.* Usually this drug is given together with beta-lactamase inhibitor compounds such as clavulanate or salbactam to prevent hydrolysis by broad-spectrum beta-lactamases found in gram-negative bacteria (Brunton *et al.* , 2008). *Meloxicam* drugs given to *Mixed Chow* dogs who have undergone a simple mastectomy. Meloxicam is used to reduce pain and inflammation from several diseases such as rheumatoid arthritis, osteoarthritis, and spondhylitis. Several ways to prevent *mammary* tumors in pets include keeping animals from stress, paying attention to instincts and the reproductive cycle in animals, keeping nutritional needs met, and paying attention to environmental hygiene. In addition, clients can do routine check-ups of animal health.

Conclusion

Tumors *of mammary* tumors that most commonly affects dogs after skin tumors. *Mammary* tumors are usually small, simple nodules or large. Benign tumors usually grow slowly, are soft and small. Meanwhile, malignant tumors grow rapidly, form irregular and bound to the skin or nearby tissue, bleeding and ulceration. Mastectomy , lumpectomy and chemotherapy are treatments for *mammary* tumors . In addition, ovariohysterectomy is also a procedure that can support the occurrence of *mammary* tumors from recurring . Chow-chow breeds or the results of their crosses are one of the most common types of dogs with tumors in veterinary medicine. Tumors generally occur in reproducing female dogs between 5 - 10 years of age, however ± 80% of cases are diagnosed in dogs> 7 years old. Therapy that

is carried out involving preoperative, surgical and postoperative will determine the patient's recovery prognosis.

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